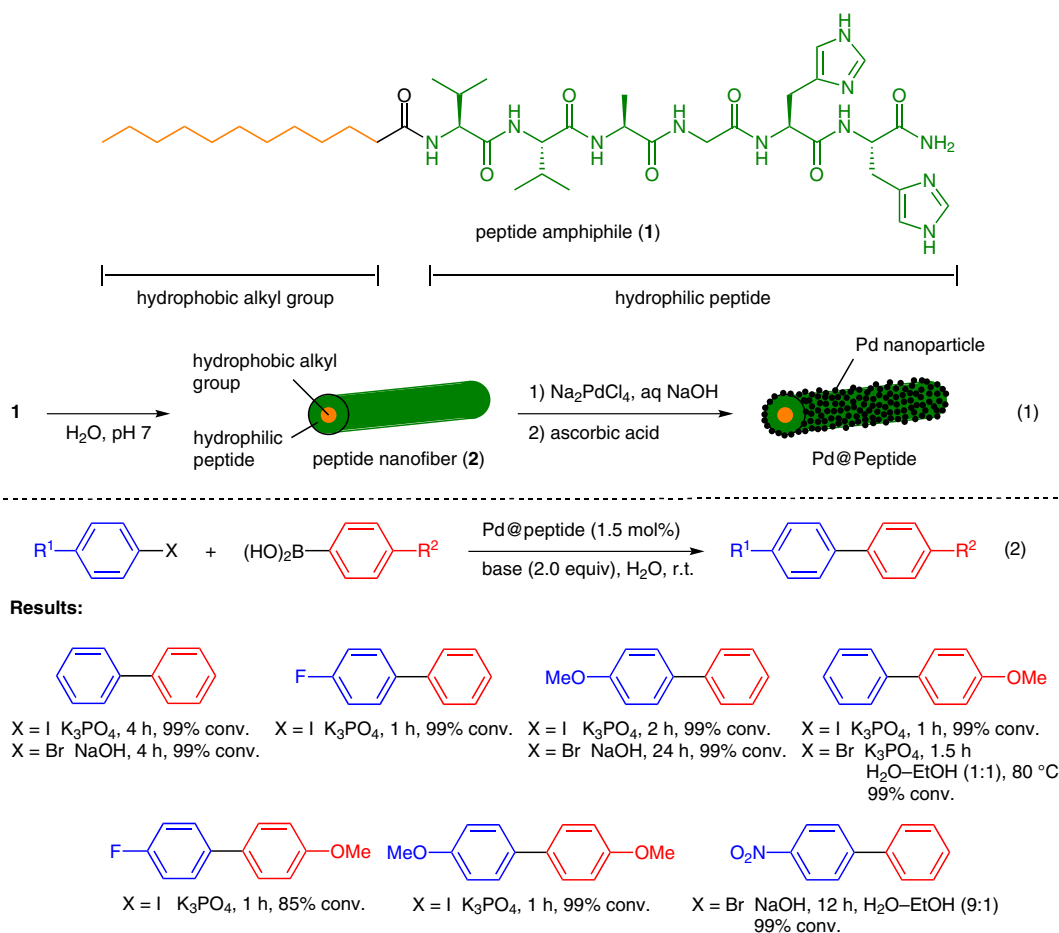


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A Supramolecular Peptide Nanofiber Templated Pd Nanocatalyst for Efficient Suzuki Coupling Reactions Under Aqueous Conditions

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The Suzuki–Miyaura Coupling with Pd@Peptide



Significance: Palladium nanoparticles supported on peptide nanofiber (Pd@Peptide) were prepared by complexation of peptide nanofiber **2**, prepared via self-assembly of peptide amphiphile **1**, with Na_2PdCl_4 in aqueous NaOH followed by reduction with ascorbic acid (eq. 1). Pd@Peptide catalyzed the Suzuki–Miyaura coupling of aryl halides with arylboronic acids in water to give the corresponding biaryls in up to 99% conversion (10 examples, eq. 2).

Comment: Pd@Peptide were characterized with TEM, SEM, XRD, and TGA. In the coupling reaction of bromobenzene and 4-methoxyphenylboronic acid, the catalyst was reused four times without significant loss of catalytic activity (1st reuse: 97% conversion, 2nd reuse: 97% conversion, 3rd reuse: 97% conversion, 4th reuse: 95% conversion).

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